

EXHIBIT 1

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571-272-7822

Paper 6
Entered: August 14, 2018

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BROOKS SPORTS, INC.,
Petitioner,

v.

HERBERT E. TOWNSEND,
Patent Owner.

Case IPR2018-00577
Patent 7,490,416 B2

Before MEREDITH C. PETRAVICK, HYUN J. JUNG, and
SCOTT A. DANIELS, *Administrative Patent Judges*.

JUNG, *Administrative Patent Judge*.

DECISION TO INSTITUTE
35 U.S.C. § 314(a)

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I. INTRODUCTION

Brooks Sports, Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting institution of an *inter partes* review of claims 1 and 6 of U.S. Patent No. 7,490,416 B2 (Ex. 1001, “the ’416 patent”). Herbert E. Townsend (“Patent Owner”) filed a Preliminary Response (Paper 5, “Prelim. Resp.”). Under 35 U.S.C. § 314, an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

Upon consideration of the Petition and Preliminary Response and for the reasons explained below, we determine that Petitioner has shown that there is a reasonable likelihood that it would prevail with respect to at least one of the challenged claims. As such, we institute an *inter partes* review of all challenged claims on all presented challenges, and thus, institute an *inter partes* review of claims 1 and 6 of the ’416 patent.

II. BACKGROUND

A. *Related Proceedings*

The parties indicate that the ’416 patent is the subject of *Townsend v. Brooks Sports, Inc.*, Case No. 2:17-cv-01322-RSM (W.D. Wash.). Pet. 1; Paper 4, 2.

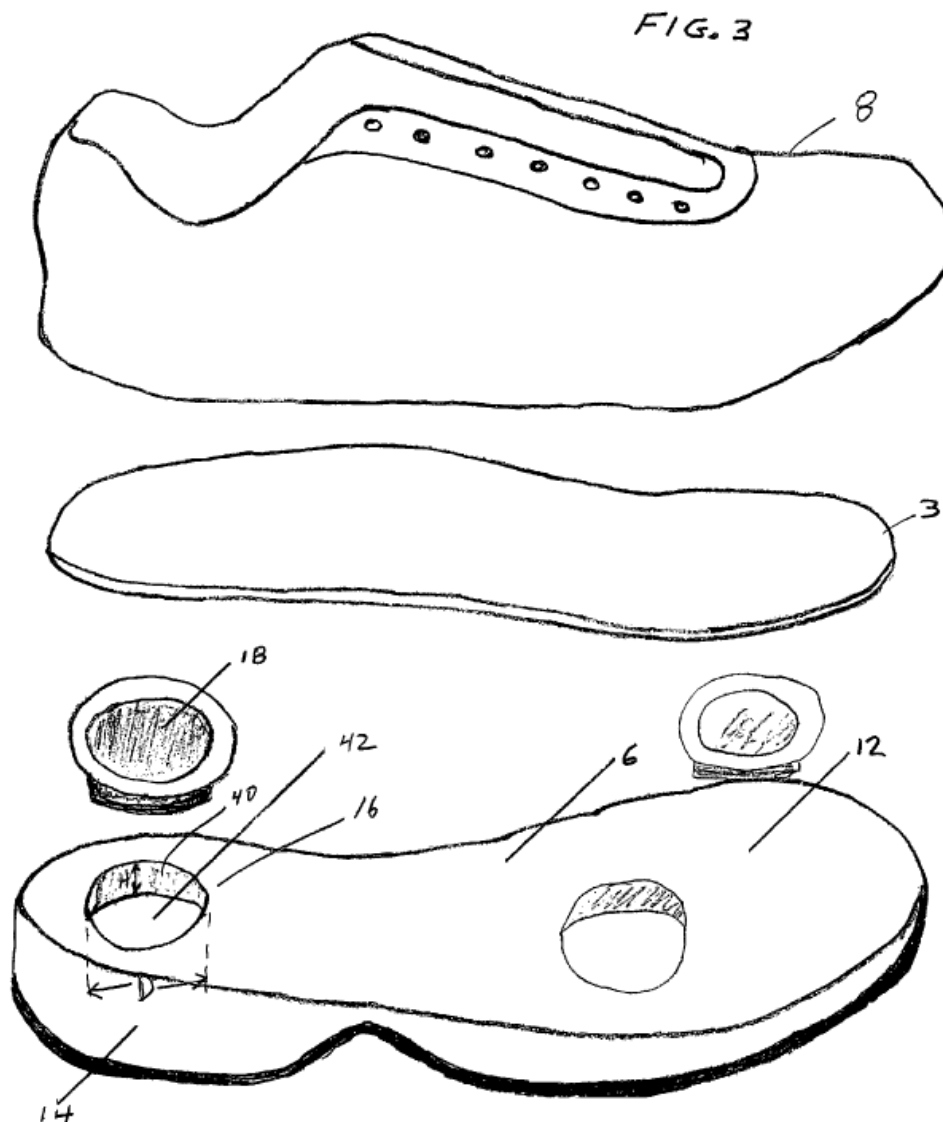
B. *The ’416 Patent (Ex. 1001)*

The ’416 patent issued February 17, 2009, from an application filed November 23, 2004, and claims priority to provisional applications filed January 26, 2004 and February 26, 2004. Ex. 1001, [22], [45], [60], 1:9–11.

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The '416 patent "is directed to an athletic shoe . . . having improved cushioning and energy returning properties that vary depending upon the speed of the runner due to incorporation of at least one insert containing dilatant compound." Ex. 1001, 1:16–20. Figure 3 of the '416 patent is reproduced below.



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Figure 3 is an “assembly drawing of a shoe.” *Id.* at 3:28–29. The shoe includes midsole 6 with at least one cavity 16. *Id.* at 3:45–47, 3:65–66. Cavity 16 receives insert 18 which is filled with a dilatant compound. *Id.* at 4:4–6. The ’416 patent states that “a dilatant compound is a polymeric material that changes from soft and pliable under slow application of a load to elastic and bouncy under rapid application of a load.” *Id.* at 2:40–42.

According to the ’416 patent, “it has been taught to interpose devices having variable elastic moduli between a runner’s foot and the midsoles of running shoes so as to provide variable shock absorbing and cushioning properties,” and “[d]ilatant compounds are also well known.” *Id.* at 2:39, 3:1–4.

C. Challenged Claims

The ’416 patent has 11 claims, of which Petitioner challenges claims 1 and 6. Both claims are reproduced below.

1. A shoe to be worn on a foot, said shoe comprising a midsole having a top surface, said shoe midsole fabricated from material having a fixed elastic modulus and having at least one cavity formed in said top surface below the bottom of the foot, said at least one cavity filled with material consisting essentially of a dilatant compound, all of which material consisting essentially of a dilatant compound is retained below the bottom of the foot.

6. The shoe of claim 1 wherein said at least one cavity is cylindrically shaped and has a diameter between 1 3/8” and 1 5/8” and has a side wall height between 3/8” and 5/8”.

Ex. 1001, 8:28–35, 9:6–8.

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D. Asserted Grounds

Petitioner challenges claim 1, under 35 U.S.C. § 102, as anticipated by Izumi.¹ Petitioner also challenges claim 1, under 35 U.S.C. § 103, as obvious in view of Izumi alone, Rudy² and Plant,³ Christensen⁴ and Ito,⁵ and applicant admitted prior art⁶ and Izumi. Pet. 2–3.

Petitioner challenges claim 6, under 35 U.S.C. § 103, as obvious in view of Izumi and Chang;⁷ Rudy, Plant, and Chang; Christensen, Ito, and Chang; and applicant admitted prior art, Izumi, and Chang. *Id.*

In support of its proposed grounds, Petitioner relies on a Declaration of Dr. Martyn Shorten (Ex. 1047, “Shorten Decl.”). In support of its Preliminary Response, Patent Owner proffers a Declaration of Gareth McKinley, Ph.D. (Ex. 2003, “McKinley Decl.”).

Petitioner states that a “person of ordinary skill in the art . . . was a person with an undergraduate degree in a field relevant to product design or manufacturing or the equivalent work experience, with 3–5 years of work experience and/or post-graduate study, including coursework or work experience related to materials science, engineering or biomechanics of footwear manufacturing methods.” Pet. 27 (citing Shorten Decl. ¶ 185).

¹ JP H7-9105, published Feb. 10, 1995 (Ex. 1003). Citations to Izumi in this Decision are to the certified English translation (Ex. 1002).

² US 6,158,149, issued Dec. 12, 2000 (Ex. 1005).

³ GB 2 349 798 A, published Nov. 15, 2000 (Ex. 1006).

⁴ US 2003/0120353 A1, published June 26, 2003 (Ex. 1008).

⁵ US 4,768,295, issued Sept. 6, 1988 (Ex. 1007).

⁶ Petitioner specifies certain portions of the ’416 patent as being allegedly applicant admitted prior art. Pet. 13–14 (citing Ex. 1001, 2:19–27, 2:33–38, 4:21–22, 4:65–66; Ex. 1047 ¶¶ 137–140), 65–67 (further citing Ex. 1001, 1:25–26, 2:30–33, 3:1–6, 6:50–54).

⁷ US 4,918,838, issued Apr. 24, 1990 (Ex. 1004).

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Patent Owner does not propose a level of ordinary skill at this stage of the proceeding. We preliminarily adopt Petitioner’s proposed level of ordinary skill solely to determine whether there is a reasonable likelihood that Petitioner would prevail with respect to at least 1 of the claims challenged in the Petition.

III. ANALYSIS

A. *Claim Construction*

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs. LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard).

Petitioner proposes interpretations for “dilatant compound,” “material consisting essentially of a dilatant compound,” and “material having a fixed elastic modulus.” Pet. 28–31. Patent Owner proposes interpretations for “dilatant compound,” “material consisting essentially of a dilatant compound,” “said shoe midsole . . . having at least one cavity formed in said top surface,” and “below the bottom of the foot.” Prelim. Resp. 14–19. Patent Owner also responds to Petitioner’s proposed interpretations. *Id.* at 23–26.

The parties generally agree that “dilatant compound” requires certain characteristics or features related to the applied load. *See* Pet. 28–29; Prelim. Resp. 14–15, 23. However, according to Petitioner, “material consisting essentially of a dilatant compound” can include substances that are not dilatant as long as they do not render the recited dilatant compound

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non-dilatant as a whole (Pet. 29), but according to Patent Owner, the same limitation allows the recited dilatant compound to include materials that do not diminish its elasticity and strain rate (Prelim. Resp. 15, 23–26). At this stage, for the reasons discussed below, Petitioner’s arguments and evidence sufficiently show how the asserted prior art discloses or teaches a “material consisting essentially of a dilatant compound” under either interpretation. *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (construing explicitly only those claim terms in controversy and only to the extent necessary to resolve the controversy).

Also, the arguments and evidence at this early stage do not persuade us to adopt Patent Owner’s proposed interpretation of “cavity formed in said top surface” to mean “a space within the midsole that opens only to the top surface of the midsole.” *See* Prelim. Resp. 15–17. For example, Patent Owner cites a dictionary definition to argue the “plain and ordinary meaning of cavity includes ‘a space *within* a mass.’” *Id.* at 16 (citing Ex. 2001) (emphasis added); *see also id.* at 17 (discussing an embodiment that “has one or more midsole chambers within the midsole”).

Further, the present record does not persuade us to adopt Patent Owner’s proposed interpretation of “below the bottom of the foot” to mean “the entire cavity, including the top surface, is directly under the foot.” *See id.* at 18–19. At this stage, as discussed below, Petitioner provides sufficient argument and evidence to demonstrate that the asserted prior art discloses or teaches the limitation under Patent Owner’s proposed interpretation.

Thus, for the purposes of determining whether Petitioner demonstrates a reasonable likelihood of prevailing in its challenges, we determine that no

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express interpretation is required for any claim term. *Vivid Techs.*, 200 F.3d at 803.

B. Challenge Under 35 U.S.C. § 102

Petitioner contends that claim 1 is anticipated by Izumi. Pet. 2, 31–40. Patent Owner responds that Izumi fails to disclose a “material consisting essentially of a dilatant compound” and a cavity formed in the top surface “below the bottom of the foot.” Prelim. Resp. 34–39.

1. Izumi (Ex. 1002)

Izumi relates to a sports shoe with improved stability and shock mitigation characteristics. Ex. 1002 ¶ 1. Figure 1 of Izumi is reproduced below.

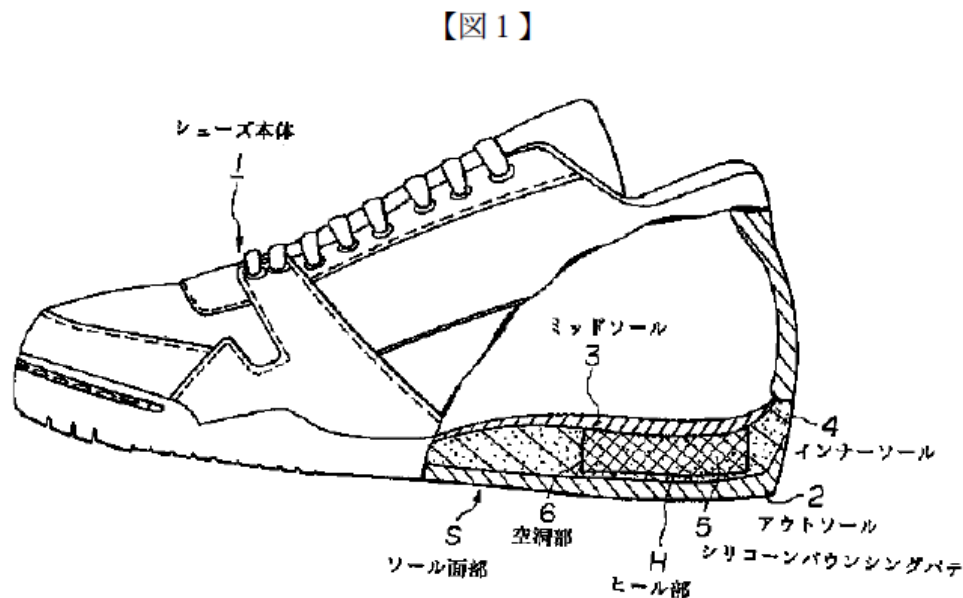


Figure 1 is a cutaway of a shoe. *See id.* ¶ 30. Shoe 1 includes mid sole 4 with hollow portions 6 that are filled with silicone bouncing putty 5. *See id.* ¶ 17. One property of silicone bouncing putty 5 is that it acts like a liquid when a small force is applied to it and acts like a rigid body when a large force is applied to it. *See id.* ¶¶ 13, 18, 24, 29.

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2. Claim 1

Petitioner contends that Izumi discloses every element of claim 1. Pet. 31–40 (citing Ex. 1002 ¶¶ 1, 13, 17–21, 24, 26, 27, Figs. 1–3, 5, 6; Shorten Decl. ¶¶ 209–220, 222–226); *see also id.* at 14–17 (asserting what Izumi discloses).

a. “material consisting of essentially of a dilatant compound”

Claim 1 requires “said at least one cavity filled with material consisting essentially of a dilatant compound.” Ex. 1001, 8:31–32. Petitioner points to disclosures related to “silicone bouncing putty 5” to argue that one of ordinary skill in the art would have understood “silicone bouncing putty” refers to a dilatant compound. Pet. 36–37 (citing Ex. 1002 ¶¶ 17, 26, 27, Figs. 2, 5, 6; Shorten Decl. ¶¶ 219–220).

Petitioner also argues that Izumi’s description of “silicone bouncing putty” as “a mixture of silica, as a filler, in a reaction product of dimethyl polysiloxane and a boric acid compound” is equivalent to, and would be understood by one of ordinary skill in the art to be the same as, the “Dilatant Compound No. 3179” of the ’416 patent, which is described as “a mixture of dimethyl siloxane, hydroxyl-terminated polymers with boric acid.” *Id.* at 37 (citing Ex. 1001, 4:16–23; Ex. 1002 ¶ 13) (emphasis omitted). According to Petitioner, an ordinary skilled artisan would have understood both Izumi’s silicone bouncing putty and Dilatant Compound No. 3179 contain silica. *Id.* (citing Ex. 1011, 5–6; Shorten Decl. ¶ 220; Ex. 1064, 2). Petitioner contends that Silly Putty is also a dilatant compound and referred to as “bouncing putty.” *Id.* (citing Ex. 1001, 2:51–52; 6:50–54, 6:66–7:2; Ex. 1009, 1:5–29, 4:22–25; Shorten Decl. ¶¶ 220, 222). Petitioner asserts that

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Izumi describes its silicone bouncing putty as having the properties of a dilatant compound and that one of ordinary skill in the art would understand Izumi discloses the benefits described in the '416 patent. *Id.* at 38 (citing Ex. 1001, 3:4–6; Ex. 1002 ¶¶ 13, 18; Shorten Decl. ¶¶ 221–223).

Patent Owner responds that Izumi does not disclose a “material consisting essentially of a dilatant compound.” *See* Prelim. Resp. 2, 22, 34–37. Patent Owner contends that Petitioner’s interpretation of “dilatant” is unreasonably broad, inconsistent with its plain meaning, and contrary to the specification and prosecution history. *Id.* at 35. Patent Owner also contends that Izumi discloses a “silicone bouncing putty” that includes “silica, as a filler” diminishing elasticity at high loading rate and strain rate. *Id.* (citing Ex. 1002 ¶¶ 13). Patent Owner argues that “material ‘consisting essentially of a dilatant compound’” excludes compounds like the “silicone bouncing putty” of Izumi. *Id.* at 35–37 (citing Pet. 38; Ex. 1009, 4:22–25; Ex. 1011; Ex. 1045, 4:3–6, 4:42–45, 4:53–57, 5:20–22; Ex. 1064; McKinley Decl. ¶¶ 20, 23–25, 28); *see also id.* at 4–9 (discussing the specification and prosecution history of the '416 patent), 14–15 (proposing interpretations for “dilatant compound” and “material consisting essentially of a dilatant compound”).

Whether Izumi discloses a “material consisting essentially of a dilatant compound” presents an issue that would be better decided on a record developed at trial. Further, the conflicting testimonies of the parties’ experts (Shorten Decl. ¶¶ 220–223; McKinley Decl. ¶¶ 23–25, 28) create a genuine issue of material fact, and “such testimonial evidence will be viewed in the light most favorable to the petitioner solely for purposes of deciding whether to institute an *inter partes* review.” 37 C.F.R. § 42.108(c).

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Therefore, at this stage, Petitioner provides sufficient arguments and evidence that Izumi discloses “said at least one cavity filled with material consisting essentially of a dilatant compound,” as recited by claim 1.

b. “said at least one cavity filled with material consisting essentially of a dilatant material, all of which material consisting essentially of a dilatant compound is retained below the bottom of the foot”

For the required cavity of claim 1, Petitioner argues that Izumi discloses hollow portions 6, 8, 9 with silicone bouncing putty. Pet. 36 (citing Ex. 1002 ¶¶ 17, 26, 27, Figs. 2, 5, 6). As summarized above, Petitioner argues that one of ordinary skill in the art would have understood the silicone bouncing putty of Izumi refers to a dilatant compound. *Id.* at 36–38.

For the recitation “all of which material consisting essentially of the dilatant compound is retained below the bottom of the foot,” Petitioner asserts that all the embodiments of Izumi have cavities with silicone bouncing putty below the foot. Pet. 38–40 (citing Ex. 1002 ¶¶ 19–21, Fig. 3). Petitioner contends that “[b]ecause the bottom of the wearer’s foot rests on the top surface of the inner sole 3, the dilatant compound is in turn retained below the bottom of the foot” in these embodiments. *Id.* at 39 (citing Shorten Decl. ¶¶ 224–226).

Patent Owner responds that Izumi does not disclose a shoe midsole having a cavity formed in its top surface “below the bottom of the foot.” Prelim. Resp. 37–39. Patent Owner argues that Petitioner “does not specifically assert that any ‘hollow portion’ in the midsole disclosed by Izumi is entirely under the foot of the wearer” but instead “asserts that Izumi’s silicone bouncing putty is ‘retained below the bottom of the foot’

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only because it is in the midsole under an inner sole, which is below the runner's foot.” *Id.* at 37–38 (citing Pet. 14–17, 33–36, 38–40). Patent Owner also argues that the “hollow portions . . . are positioned at the inner and outer edges of the midsole so that the function of the midsole to absorb shock from the wearer's foot is not diminished.” *Id.* (referencing its arguments regarding the shoe of Izumi).

According to Patent Owner, Petitioner's position that the limitation “requires no more than being in the midsole of the shoe” is unreasonable. *Id.* at 38. Relying on its proposed interpretation of “below the bottom of the foot,” Patent Owner asserts that none of Izumi's embodiments disclose a “midsole cavity that is entirely ‘directly under the foot’ as ‘below the bottom of the foot’ should be construed.” *Id.* at 38–39 (citing Ex. 1002 ¶¶ 27, 30).

Based on the record thus far, Petitioner's arguments that hollow portions 6, 8, 9 disclose “at least one cavity filled with material consisting essentially of a dilatant compound . . . retained below the bottom of the foot” are sufficient. For the reasons discussed above in Section III.A., the present record does not persuade us to adopt Patent Owner's proposed interpretations of “cavity formed in said top surface” and “below the bottom of the foot.” Even if we were to accept the proposed interpretations, Petitioner points to Figures 2, 5, and 6 of Izumi, which adequately show a cavity below the bottom of the foot in accordance with Patent Owner's proposed interpretations. *See* Pet. 36.

Thus, for the reasons above, at this stage of the proceeding, Petitioner provides sufficient arguments and evidence that Izumi discloses “said at least one cavity filled with material consisting essentially of a dilatant

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material, all of which material consisting essentially of a dilatant compound is retained below the bottom of the foot,” as recited by claim 1.

C. Challenges Under 35 U.S.C. § 103

1. Challenge Based on Izumi Alone

Petitioner contends that claim 1 is rendered obvious by Izumi. Pet. 40–41. Petitioner relies on its arguments that Izumi discloses claim 1 and argues that, even if “at least one cavity filled with material consisting essentially of a dilatant compound” is not disclosed specifically, Izumi would have rendered obvious claim 1. Pet. 40. In particular, Petitioner argues that one of ordinary skill would have arrived at a “material consisting essentially of a dilatant compound” based on Izumi’s teachings. *Id.* at 41 (referring to anticipation arguments) (citing Ex. 1021, 2:30–34, 2:44–54; Shorten Decl. ¶¶ 227–228).

Patent Owner responds that Petitioner recognizes that Izumi does not necessarily disclose a dilatant compound and argues that the mixture disclosed by Izumi is not a “material consisting essentially of a dilatant compound.” Prelim. Resp. 39–41 (citing Pet. 2, 40–41; Ex. 1002 ¶ 13).

For the reasons discussed above for the anticipation challenge based on Izumi, whether Izumi discloses a “material consisting essentially of a dilatant compound” is an issue that would be better decided on a record developed at trial.

2. Challenge Based on Rudy and Plant

Petitioner also contends that claim 1 is rendered obvious by Rudy and Plant. Pet. 49–54. Petitioner argues that one of ordinary skill in the art would have been motivated to combine Rudy and Plant. Pet. 54–56. Patent Owner responds that Rudy and Plant would not have rendered claim 1

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obvious because of the recited “at least one cavity formed in said top surface below the bottom of the foot” and “material consisting essentially of a dilatant compound.” Prelim. Resp. 43–48.

a. Rudy (Ex. 1005)

Rudy “relates to articles of footwear that include cushioning devices.” Ex. 1005, 1:11–12. Figure 2 of Rudy is reproduced below.

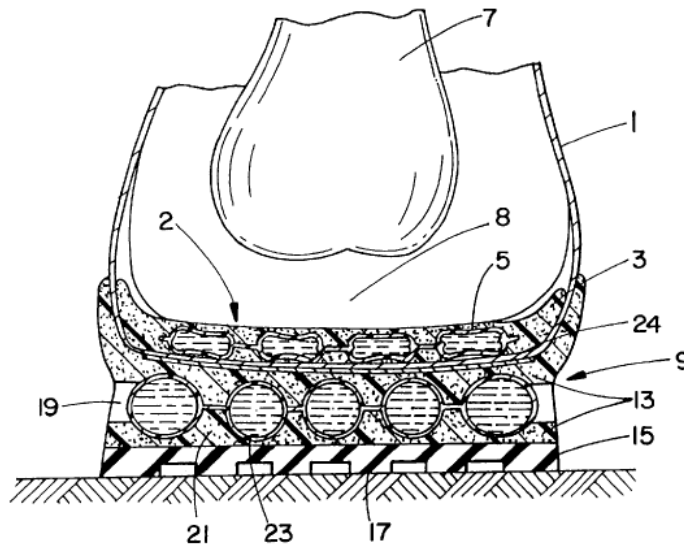


FIG. 2

Figure 2 is a diagram partly in section of a shoe under a standing load condition. *Id.* at 3:28–30. The shoe has sockliner 2 encapsulating cushioning device 5. *Id.* at 4:9–12. The shoe also has sole 9 with midsole 13 comprising cushioning device 23. *Id.* at 4:22–23, 4:26–28.

b. Plant (Ex. 1006)

Plant “relates to a new energy absorbing member . . . suitable for incorporation into garments or apparel worn by people who need their body parts protected against impact.” Ex. 1006, 1:3–6. The protective member comprises an energy absorbing material in an envelope which contains the material. *Id.* at 2:13–17, 4:23–27. The energy absorbing material can be a

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“dilatant compound which is normally malleable under low strain rates and behaves in a manner similar to a putty like substance.” *Id.* at 5:1–5.

c. Claim 1

Petitioner contends that Rudy teaches or suggests substantially all the limitations of claim 1. Pet. 49–51 (citing Ex. 1005, 1:9–10, 2:61–63, 4:22–23, 4:26–28, 4:43–47, 6:36–67, 8:34–35, 8:52–54, 12:6–10, 12:26–27, Figs. 1, 2, 4, 7, 8; Ex. 1043, 12:58–60; Ex. 1044, 9:31–48; Shorten Decl. ¶¶ 206, 262–274), 54 (citing Ex. 1005, 4:43–47, 6:39–43, Fig. 4; Shorten Decl. ¶¶ 287–288). For example, Petitioner contends that Rudy teaches or suggests a “shoe midsole . . . having at least one cavity formed in said top surface below the bottom of the foot.” *Id.* at 51–52 (citing Ex. 1005, 2:61–63, 4:43–47, 12:6–10; Ex. 1044, 9:31–48; Shorten Decl. ¶¶ 270–274) (emphasis omitted).

Petitioner also contends that Rudy teaches or suggests “at least one cavity filled with material consisting essentially of a dilatant compound.” *Id.* at 52 (citing Ex. 1005, 5:17–27; Ex. 1025, 1:14–21; Shorten Decl. ¶¶ 275–277). Petitioner relies on Plant for teaching the use of dilatant material in energy absorbing applications. *Id.* at 53 (citing Ex. 1006, Abstract, 2:13–18, 2:22–24, 5:1–10, 5:21–24, 8:24–9:2, Fig. 2; Shorten Decl. ¶¶ 278–280).

Petitioner asserts that one of ordinary skill in the art would have been motivated to combine Rudy and Plant, that the proposed combination is an arrangement of old elements with predictable results or predictable variation, and that it would have been obvious to substitute the cushioning insert of Rudy with the pad containing Dow Compound No. 3179 of Plant. Pet. 54–56 (citing Ex. 1005, 1:29–31, 5:17–28, 5:31–42; Ex. 1006, 1:3–6, 9:9–13;

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Ex. 1031, 1:3–5, 1:18–20, 4:13–16, 5:28–6:7; Ex. 1045, 5:29–31, 9:59; Shorten Decl. ¶¶ 282–286).

Patent Owner responds that Petitioner does not assert that its proposed combination of Rudy and Plant is the energy returning running shoe of the '416 patent. Prelim. Resp. 43. Patent Owner argues that Rudy teaches a shoe having a fluid containing cushioning device in its midsole for absorbing high load. *Id.* at 43–46 (citing Ex. 1005, 2:44–65, 3:7–10, 4:31–42, 5:40–47, 6:10–14, 6:33–51, 7:8–39, 8:66–10:41, Figs. 2–4). Patent Owner also argues that Plant teaches protective members for body protecting pads but does not teach using the pads in a shoe or the midsole of a shoe. *Id.* at 47 (citing Ex. 1006, 1:1–14, 2:13–18, 4:23–5:17, 5:19–24, 7:11–25, 8:11–19, 9:9–13, 11:21–12:6, Figs. 1–8). Patent Owner, thus, argues that Rudy does not teach a shoe midsole “having at least one cavity formed in said top surface below the bottom of the feet.” *Id.* at 48–49.

At this early stage, Petitioner’s arguments that Rudy teaches or suggests a “cavity formed in said top surface below the bottom of the foot” are sufficient for instituting review. *See* Pet. 51–52 (citing Ex. 1005, 2:61–63, 4:43–47, 12:6–10, Fig. 4; Ex. 1044, 9:31–48; Shorten Decl. ¶¶ 270–274). Also for the reasons above in Section III.A., the present record does not persuade us to adopt Patent Owner’s proposed interpretation of “cavity formed in said top surface.”

Patent Owner also contends that Rudy and Plant fail to render obvious a shoe having a midsole with “at least one cavity filled with material consisting essentially of a dilatant compound.” Prelim. Resp. 49–51 (citing Pet. 28, 52, 54–56; Ex. 1005, 5:17–28, 5:31–42, 6:33–7:7; McKinley Decl. ¶¶ 29–32). Similar to the challenges based on Izumi, whether Rudy

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discloses a “material consisting essentially of a dilatant compound” presents an issue that would be better decided on a record developed at trial. On the limited record developed thus far, Petitioner provides sufficient arguments and evidence for instituting review of claim 1. Further, because of the conflicting testimonies of the parties’ experts (Shorten Decl. ¶¶ 220–223; McKinley Decl. ¶¶ 23–25, 28), we view such evidence “in the light most favorable to the petitioner solely for purposes of deciding whether to institute an *inter partes* review.” 37 C.F.R. § 42.108(c).

Based on the present record, Petitioner shows a reasonable likelihood that it would prevail with respect to the challenge that claim 1 would have been rendered obvious by Rudy and Plant.

3. Challenge Based on Christensen and Ito

Petitioner further contends that claim 1 would have been rendered obvious by Christensen and Ito. Pet. 57–63. Patent Owner responds that the “combination does not disclose the dilatant compound . . . or that a cavity in the midsole of a shoe is filled.” Prelim. Resp. 52.

a. Christensen (Ex. 1008)

Christensen relates to a variable resistance cell. Ex. 1008 ¶ 3. It states that “it is often desirable to provide greater resistance to greater applied conditions, and lesser resistance to lesser applied conditions.” *Id.* ¶ 5. Figure 10 of Christensen is reproduced below.

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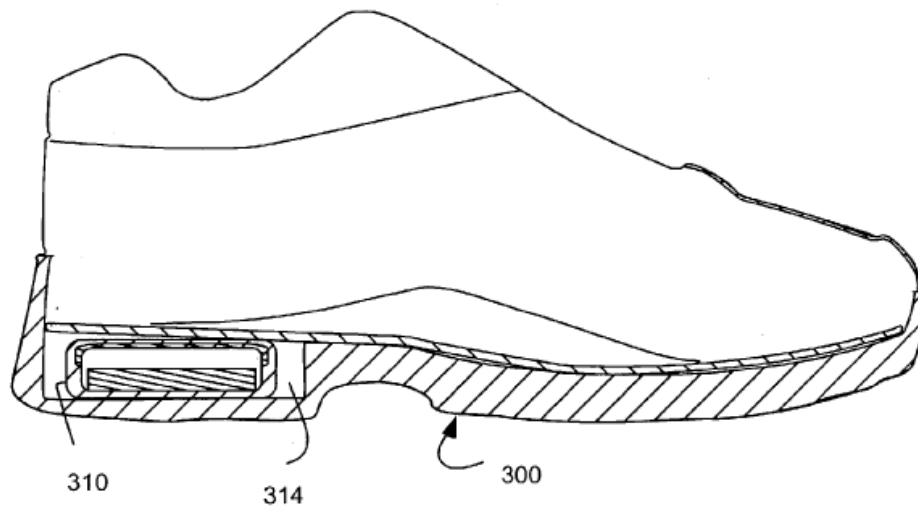


FIG. 10

Figure 10 is a cross-sectional view of a shoe with a variable resistance cell. *Id.* ¶ 27. Shoe 300 includes variable resistance cell 310 positioned at the heel in cavity 314. *Id.* ¶ 59. Variable resistance cell 310 can act as a cushion. *Id.*

The variable resistance cells of Christensen provide a variable resistance response to a load because, according to Christensen, it is advantageous to have such a cell that compresses less in response to a greater load but compresses more in response to a lesser load. *Id.* ¶¶ 6, 7. The variable resistance cells include a variable viscosity fluid or material that increases in viscosity with an increase in the load applied to it. *See id.* ¶¶ 32, 36, 38. Christensen also indicates that less viscous material dissipates more energy or force and more viscous material transfers more energy or force. *See id.* ¶ 42.

b. Ito (Ex. 1007)

Ito “relates to a sole for sports shoes.” Ex. 1007, 1:6–7. Figure 1 of Ito is reproduced below.

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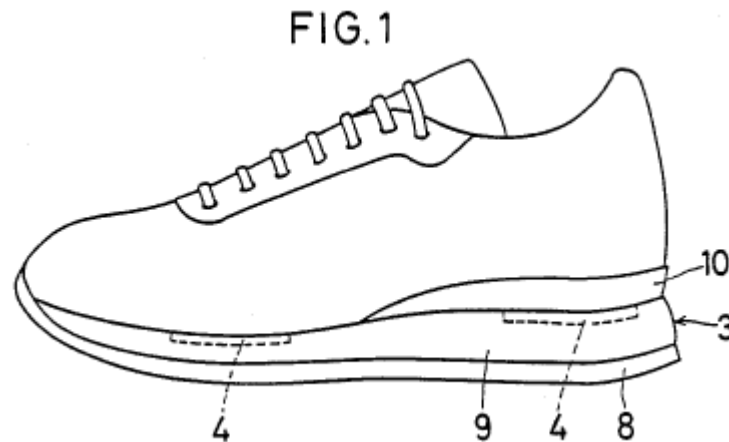


Figure 1 is a side view with the sole of Ito. *Id.* at 2:11–12. Sole plate 3 is formed with recesses 4 that receive cushioning members 1. *Id.* at 2:22–24. Sole plate 3 comprises outer sole 8, middle sole 9, and upper sole 10. *Id.* at 2:50–52. Recesses 4 are formed in the top surface of middle sole 9. *Id.* at 2:52–54.

c. Claim 1

Petitioner contends that Christensen teaches or suggests all the limitations of claim 1, except “said shoe midsole fabricated from material having a fixed elastic modulus,” for which Petitioner relies on Ito. Pet. 57–63 (citing Ex. 1007, 2:49–54, 2:62–63, Figs. 1–3; Ex. 1008 ¶¶ 5, 7, 27, 31–33, 42, 59, Fig. 10; Shorten Decl. ¶¶ 206, 292–296, 299–307) (emphasis omitted). Petitioner also contends that one of ordinary skill in the art would have been motivated to combine Christensen and Ito. Pet. 63–64 (citing Ex. 1007, 1:24–28; Ex. 1008 ¶¶ 5, 42; Shorten Decl. ¶¶ 297–298, 308).

Patent Owner responds that Christensen and Ito fail to teach the claimed dilatant compound and that a cavity in the midsole of a shoe is filled with material consisting essentially of the dilatant compound. Prelim. Resp. 52–55. Patent Owner contends that Christensen teaches a variable resistance cell. *Id.* at 53–54 (citing Ex. 1008 ¶¶ 32–34, 37, 39, 42, 59, Figs. 1, 2).

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Patent Owner argues that the “dilatant compound” of claim 1 does not encompass Christensen’s variable viscosity fluid and Petitioner does not assert the variable viscosity fluid is elastic or bouncy at high load. *Id.* at 54–55. Petitioner, however, provides evidence that one of ordinary skill in the art would have understood such a fluid to be a “dilatant compound.” *See* Pet. 62 (citing Ex. 1008 ¶¶ 5, 32, 42; Shorten Decl. ¶¶ 304–306).

Patent Owner also argues that Petitioner does not assert that a cavity is “filled” with the variable viscosity fluid of Christensen or that the variable resistance cell fills a cavity. Prelim. Resp. 55. Petitioner, however, argues Christensen teaches that the variable viscosity fluid is in enclosure 14, which is received in cavity 314, and even if the required cavity is not expressly taught by Christensen, Petitioner argues that such a cavity would have been obvious in view of the teachings of Ito. *See* Pet. 60–62 (citing Ex. 1007, 2:52–54, Figs. 2, 3; Ex. 1008 ¶¶ 5, 7, 32, 33, 42, 59, Fig. 10; Shorten Decl. ¶¶ 299–306). At this stage, Petitioner’s arguments and evidence sufficiently show that Christensen teaches cavity 314 “filled” with a variable viscosity fluid and that Ito teaches recesses 4 filled with cushioning member 1.

Thus, Petitioner shows a reasonable likelihood that it would prevail with respect to the challenge that Christensen and Ito would have been rendered obvious claim 1.

4. Challenge Based on Applicant Admitted Prior Art and Izumi

Petitioner contends that claim 1 is rendered obvious by applicant admitted prior art (“AAPA”) and Izumi. Pet. 65–67 (citing Ex. 1001, 1:25–26, 2:19–20–27, 2:30–39, 4:21–22, 4:65–66, 6:50–54; Ex. 1002 ¶ 21; Shorten Decl. ¶¶ 310–318). Petitioner also argues that one of ordinary skill in the art would have been motivated to combine AAPA and Izumi to

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achieve “energy storing and returning properties at higher running speeds.” Pet. 67–68 (citing Ex. 1001, 3:1–6; Ex. 1002 ¶ 14; Shorten Decl. ¶¶ 319–320).

Patent Owner responds that Petitioner provides no reasoning or rational underpinning for replacing a gel pad with the asserted dilatant compound of Izumi. Prelim. Resp. 41 (citing Pet. 3, 65–68; Ex. 1001, 6:50–62). Patent Owner also argues that “Izumi does not disclose energy storing and returning by the silicone bouncing putty,” the asserted reason for combining AAPA and Izumi. *Id.* at 42. According to Patent Owner, the reason for combining cannot come from the ’416 patent, there is no articulated reasoning in the Petition, and the opinion of Petitioner’s declarant lacks factual support. *Id.* (citing Pet. 68; Shorten Decl. ¶ 320). Patent Owner further asserts that Izumi teaches using a gel pad. *Id.* (citing Ex. 1002 ¶¶ 22, 25).

As discussed earlier, whether Izumi discloses a “material consisting essentially of a dilatant compound,” including if it provides the allegedly admitted prior art feature of “energy storing and returning properties at higher running speeds,” presents a factual issue better decided on a record developed at trial. Thus, at this stage, Petitioner provides sufficient argument and evidence that claim 1 would have been rendered obvious by AAPA and Izumi.

5. Challenges Against Claim 6

Petitioner contends that claim 6 would have been rendered obvious by (1) Izumi and Chang (Pet. 42–47); (2) Rudy, Plant, and Chang (*id.* at 56–57); (3) Christensen, Ito, and Chang (*id.* at 64); and (4) AAPA, Izumi, and Chang (*id.* at 68–69). Petitioner also contends that one of ordinary skill in

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the art would have been motivated to combine the asserted references. *Id.* at 47–48, 57, 64–65, 68–69.

Patent Owner responds that, for the challenges to claim 6 based on Izumi, Rudy, and Christensen, they “should be rejected because they explicitly depend on a ground of unpatentability of claim 1” and that, for the challenge to claim 6 based on AAPA, it “should be rejected for failing to allege a *prima facie* case of unpatentability.” Prelim. Resp. 55–56.

On the limited record before us, Petitioner presents arguments and evidence sufficient for instituting review.

IV. CONCLUSION

The Supreme Court held that a final written decision under 35 U.S.C. § 318(a) must decide the patentability of all claims challenged in the petition. *SAS Institute Inc. v. Iancu*, 138 S. Ct. 1348 (2018). After considering the evidence and arguments presented in the Petition and the Preliminary Response, we determine that Brooks Sports, Inc. has demonstrated a reasonable likelihood of success in proving that at least claim 1 of the ’416 patent is unpatentable.

Because Petitioner has shown that there is a reasonable likelihood that it would prevail with respect to at least one of the challenged claims, we institute an *inter partes* review of all challenged claims on all presented challenges.

At this stage of the proceeding, the Board has not made a final determination as to the patentability of any challenged claim or any underlying factual and legal issues.

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V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1 and 6 of U.S. Patent No. 7,490,416 B2 is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of U.S. Patent No. 7,490,416 B2 shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

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